IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: BUCZEK et al.	)	Confirmation No.: 1327
	)	
Application No.: 10/663,320	)	Group Art Unit: 1762
	)	
Filed: September 16, 2003	)	Examiner: JOLLEY, KIRSTEN

For: ARTICLE INCLUDING PARTICLES ORIENTED GENERALLY ALONG AN ARTICLE SURFACE AND METHOD OF MAKING

APPEAL BRIEF

MAIL STOP APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant files this Appeal Brief with the requisite fee. A Notice of Appeal and the requisite fee were previously filed on December 1, 2006.

Real party in interest

The real party in interest is General Electric Company.

Related appeals and interferences

Applicant is not aware of any related appeals and/or interferences.

Status of claims

Claims 1-19 were filed. During prosecution, claims 17-19 were amended, and new claims 21-39 were added, and claims 1-16, 20, 24-25, 29, 33, 35 and 37 have been canceled. Claims 17-19, 21-23, 26-28, 30-32, 34, 36, and 38-39 are pending, and claims 17-19, 21-23, 26-28, 30-32, 34, 36, 38 and 39 are rejected. Applicant appeals from the final rejection of claims 17-19, 21-23, 26-28, 30-32, 34, 36, 38 and 39 of the Final Office Action mailed September 1, 2006, (hereinafter "Final Office Action").

The appealed claims are set forth in Appendix I.

Status of amendments

No claim amendments were filed after final rejection. A declaration under 37 CFR 1.132 filed November 3, 2006, after final rejection, and was entered by the Examiner in the Advisory Action mailed November 26, 2006.

Summary of claimed subject matter

Independent claim 17 recites a method for orienting with respect to an article surface (14, see, e.g., FIG. 10) a plurality of non-spherical particles (20, see e.g., FIG 10), where the method including disposing non-spherical particles (20) in a non-metallic medium (18, see, e.g., FIG. 10) having a viscosity which can be increased (see, e.g., page 7, lines 1-4). In addition, claim 17 recites that each particle (20, see, e.g., FIG. 10) includes a major dimension (22, see, e.g., FIG. 1), and is capable of being moved by a force applied to the particle (20) (see, e.g., page 5, lines 18-21 and page 7, lines 12-13). The claimed medium (18) is in a fluid condition with the viscosity selected to provide a selected surface tension in the medium (18) (see, e.g., page 5, lines 18-21). The medium (18) with the particles is disposed on a surface of a gas turbine engine component article (12, see e.g., FIG. 9) (see page 9, lines 20-23). The article surface (14) of claim 17 has a complex, three-dimensional, non-planar shape (see, e.g., page 5, lines 12-13 and FIG. 3); and maintains the medium (18) in the fluid condition for a time selected to enable the surface tension to locate at least about 50% of the plurality of particles (20) with the major dimension in a position generally along the article surface (14) in respect to which each particle (20) is disposed (see, e.g., page 14, lines 9-11 and 23-26 and FIG. 10). In addition, claim 17 recites that the particles (20) are physically separated from one another (see, e.g., FIG. 10).

Independent claim 26 recites a method for orienting with respect to an article surface (14, see, e.g., FIG. 10) a plurality of non-spherical particles (20, see e.g., FIG 10), where the method

including disposing non-spherical particles (20) in a non-metallic matrix (18, see, e.g., FIG. 10) having a viscosity which can be increased (see, e.g., page 7, lines 1-4). In addition, claim 26 recites that each particle (20, see, e.g., FIG. 10) includes a major dimension (22, see, e.g., FIG. 1), and is capable of being moved by a force applied to the particle (20) (see, e.g., page 5, lines 18-21 and page 7, lines 12-13). The claimed matrix (18) is in a fluid condition with the viscosity and concentration selected to provide a selected surface tension in the matrix (18) (see, e.g., page 5, lines 18-21). The matrix (18) with the particles is disposed on a surface of a gas turbine engine component article (12, see e.g., FIG. 9) (see page 9, lines 20-23). The article surface (14) of claim 26 has a complex, three-dimensional, non-planar shape (see, e.g., page 5, lines 12-13 and FIG. 3); and maintains the matrix (18) in the fluid condition for a time selected to enable the surface tension to locate at least about 50% of the plurality of particles (20) with the major dimension in a position generally along the article surface (14) in respect to which each particle (20) is disposed (see, e.g., page 14, lines 9-11 and 23-26 and FIG. 10). In addition, claim 26 recites that the particles (20) are physically separated from one another (see, e.g., FIG. 10).

Independent claim 32 recites a method for orienting with respect to an article surface (14, see, e.g., FIG. 10) a plurality of non-spherical particles (20, see e.g., FIG 10), where the method including disposing non-spherical particles (20) in a non-metallic medium (18, see, e.g., FIG. 10) having a viscosity which can be increased (see, e.g., page 7, lines 1-4). In addition, claim 32 recites that each particle (20, see, e.g., FIG. 10) includes a major dimension (22, see, e.g., FIG. 1), and is capable of being moved by a force applied to the particle (20) (see, e.g., page 5, lines 18-21 and page 7, lines 12-13). The claimed medium (18) is in a fluid condition with the viscosity and concentration selected to provide a selected surface tension in the medium (18) (see, e.g., page 5, lines 18-21). The medium (18) with the particles is disposed on a gas turbine engine component article surface (14, see e.g., FIG. 9) (see page 9, lines 20-23). The article surface (14) of claim 32 has a complex, three-dimensional, non-planar shape (see, e.g., page 5, lines 12-13 and FIG. 3); and maintains the medium (18) in the fluid condition for a time selected to enable the surface tension and gravity to locate at least about 50% of the plurality of particles (20) with the major dimension in a position generally along the article surface (14) in respect to which each particle (20) is disposed (see, e.g., page 14, lines 9-11 and 23-26 and FIG. 10). In addition, claim 32 recites that the particles (20) are physically separated from one another (see, e.g., FIG. 10).

Grounds of rejection to be reviewed on appeal

Ground 1. Claims 17-19, 21-23, 26-28, 30-32, 34, 36 and 38-39 are rejected under 35 USC 112, first paragraph as failing to comply with the enablement requirement.

Ground 2. Claims 17-19, 21-23, 26-28, 30-32, 34, 36 and 38-39 are rejected under 35 USC 112, first paragraph as failing to comply with the written description requirement.

Argument

Ground 1. Claims 17-19, 21-23, 26-28, 30-32, 34, 36 and 38-39 are rejected under 35 USC 112, first paragraph as failing to comply with the enablement requirement.

Claims 17-19, 21-23, 26-28, 30-32, 34, 36 and 38-39

The Examiner rejects claims 17-19, 21-23, 26-28, 30-32, 34, 36 and 38-39 under 35 U.S.C. 112, based solely upon the claim language "the particles being physically separated from one another" present on lines 15-16 of claims 17, 26 and 32. The Examiner asserts in the Final Office Action that there is no teaching how to make the claimed invention, specifically how to make and maintain the particles physically separated from one another. Although the Examiner admits in the Final Office Action that FIG. 10, indeed, shows this limitation, the Examiner dismisses this support as providing enablement stating "there is nothing in the specification enabling an artisan having ordinary skill in the art how or why the claimed separation of particles in a fluid medium would be achieved." (Final Office Action, para. 3) The Examiner further makes conclusory statements that at least some of the particles would be touching or abutting, since the particles are randomly mixed in the fluid (see, e.g., Final Office Action). The Examiner dismisses the evidence provided by Appellant to rebut the Examiner's allegations of non-enablement provided by Appellant, including two Declarations filed under 37 CFR 1.132 (Appendix II, Exhibits 1 and 2), by stating that "not every combination of non-metallic medium having a non-spherical metal particles therein would result in a fluid condition where the particles are all physically separated from one another" (Final Office Action, para. 1) and that "[t]he description on pages 14 and 15 (cited in the Declaration) provides no mention of the

physical separation of particles, much less selecting a surface tension of the selected particle and viscosity of the coating medium such that physical separation is achieved." (Final Office Action, para. 1) It is noted that Appellants agree that not every combination of non-metallic medium having a non-spherical metal particle would result in a fluid condition where the particles are physically separated is included in the scope of the independent claims; however, the combinations of non-metallic medium with non-spherical metal particles that result in conditions where the particles are physically separated are within the scope of the independent claims.

Appellant disagrees with the Examiner's characterization of FIG. 10 and maintains that the figure and the disclosure enable one of ordinary skill in the art to make and use the invention. FIG. 10 is reproduced, as follows:

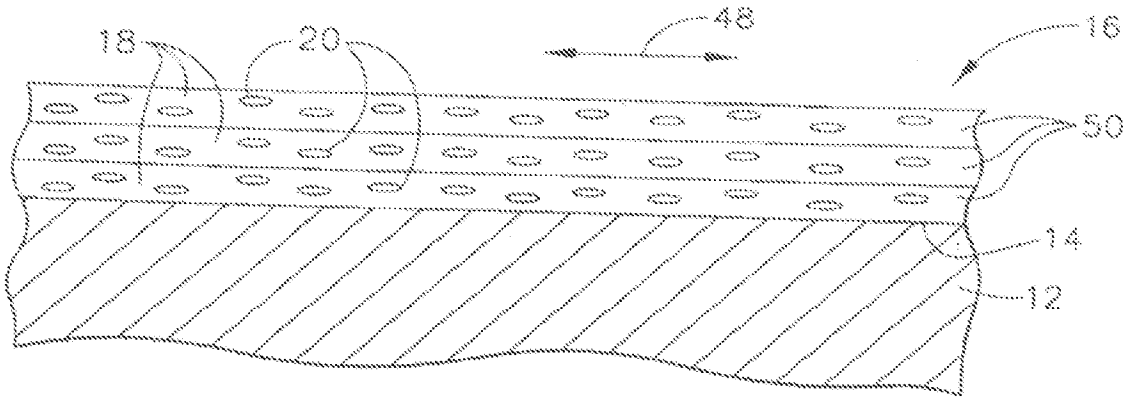


FIG. 10

As can easily be seen from FIG. 10, the particles (20) are shown as physically separated from each other within medium (18). Appellant asserts that this figure in combination with the specific examples and disclosure in the specification teach one of ordinary skill to make and use the claimed invention, including the "limitation the particles being physically separated from one another", as recited in independent claim 17. Appellant submits that there is no indication in the specification, in the figures or elsewhere indicating that the figures do not represent the present invention and the Examiner has not pointed to any evidence establishing that the figures do not represent the present invention. The Examiner merely alleges that the examples and disclosure in the specification cannot result in FIG. 10. No basis for this allegation has made. Furthermore, the Examiner has not cited any authority to dismiss the disclosure (e.g., FIG. 10), as originally filed. Merely stating that the figures are schematic is insufficient to establish that the claims are non-enabled.

Nonetheless in order to support the argument that these figures are more that simply schematic and the disclosure provides one of ordinary skill in the art sufficient teaching to make and use the claimed invention, two Declarations of inventor Andrew Skoog were provided to provide evidence that the specification enables one of ordinary skill to make and use the invention.

A declaration of Andrew Skoog under 37 C.F.R. § 1.132 (Appendix II, Exhibit 1) was filed June 22, 2006 (hereinafter the "1st Declaration") to provide both factual support for the limitation "the particles being physically separated from one another" and evidence that the limitation is enabled by the present invention. As indicated in the declaration and, as reproduced above, physical separation of the particles within the coating medium is shown in, among other locations, FIG. 10 of the specification.

In the 1st Declaration Declarant Skoog explains the physical separation of the particles within the coating medium is due to the surface tension of the selected particle and the viscosity of the coating medium (see Paragraph 5 of 1st Declaration). It is further noted in the Declaration that the support for this conclusion is present in the specification, as originally filed at least on page 14, lines 11-13, 17-21 and 23-26; and page 15, lines 5-8 (see Paragraph 5 of 1st Declaration). Declarant Skoog further explains that the medium material contacts the particle and forms a barrier layer, which impedes particle-to-particle contact and allows movement of the individual particles within the medium (see Paragraph 6 of 1st Declaration). Declarant Skoog continues explaining that the barrier layer resulting from the surface tension of the particle and the particle separation facilitates rotation in response to a force to provide the alignment of the particles in the major dimension (see Paragraph 7 of 1st Declaration). In addition to the rotation in response to force, Declarant Skoog notes that surface tension and gravity act further upon the non-spherical particles during curing, maintaining the separation between particles and permitting at least about 50% of the particles to be aligned in the direction of the major dimension, wherein support for this conclusion is present at least at page 15, lines 5-8 of the specification.

The Examiner summarily dismissed this evidence in the Final Office Action merely stating that one of ordinary skill in the art would not know, using the disclosure as a guide, what specific materials and conditions are required to make the coating medium such that a barrier layer is formed around the particles resulting in physical separation. In contrast to the Examiner's position, specific examples, including examples cited directly from the specification, as originally filed, cited by the Declarant were ignored by the Examiner.

Although Applicant disagreed with the Examiner's position, in response to this Final Office Action, additional evidence was provided in a second declaration of Andrew Skoog under 37 C.F.R. § 1.132 (Appendix II, Exhibit 1) filed November 3, 2006 (hereinafter referred to as the "2nd Declaration"). The 2nd declaration provides additional evidence of the scientific principles

governing the physical separation of the magnetic particles and does not merely explain or interpret the disclosure, see e.g., MPEP 716.09.

In the 2nd Declaration, Declarant Skoog explains the physical separation of magnetic particles within the coating medium is shown explicitly in FIGs. 5-10 (see Paragraph 5 of the 2nd Declaration). Declarant Skoog further explains that a barrier layer, specifically an oxide layer in several of the examples provided in the specification, more specifically an aluminum oxide layer, constitutes the barrier layer and prevents particle-to-particle contact while allowing movement of the individual particles within the medium (see Paragraphs 6 and 7 of the 2nd Declaration). It is noted that this barrier layer of aluminum oxide is additive of any layer that may be provided within and/or by interaction with the medium. Declarant Skoog notes that the particles selected including those exemplified in the specification, *inter alia*, at page 12, lines 7-8 and in U.S. Patent No.5,827,445 necessarily have oxide layers (see Paragraphs 6, 7, 8 and 9 of 2nd Declaration). As noted by Declarant Skoog, the examples in the specification provide sufficient guidance to one of ordinary skill in the art to practice the invention (see Paragraph 10 of the 2nd Declaration). All of the above are based on the specification, as originally filed, including specific examples disclosed therein (see specification page 12, lines 7-8; page 6, lines 11-15 and page 12, lines 13-14). These examples, including the specific compounds and the methods for assembling the compounds, clearly provide guidance to one of ordinary skill in the art and clearly teaches one of ordinary skill in the art to make and use the invention, see e.g., MPEP 2164. Furthermore, the specification, as originally filed provides sufficient disclosure and examples that result in the separated particles, as explicitly shown in FIG. 10.

The Examiner considered and entered the 2nd Declaration, but again summarily dismissed this evidence in the Advisory Action mailed November 27, 2006, merely stating that the one of ordinary skill in the art would not know, using the disclosure as a guide, including the figures that show separation of the particles, how to make and use the invention. Again, the evidence provided, including specific examples, and examples cited directly from the present specification, as originally filed, were not addressed by the Examiner.

While the Examiner chooses to ignore the evidence provided, the specification, as originally filed, and the Declarations of Andrew Skoog each provide specific examples and guidance teaching one of ordinary skill in the art how to make and use the invention. For example, as provided in the 2nd Declaration, particles having an oxide coating, such as the particles disclosed on page 12, lines 7-8 or the material recited at page 6, lines 11-19 (disclosed in U.S. Patent No. 5,827,445) in a medium taught at page 14, lines 27-29 or at page 12, lines 13-14 would result in medium wherein the particles are physically separated. This may be illustrated in the Figures, including FIG. 10.

The Examiner indicates in the Advisory Action mailed November 27, 2006 that the FIG. 10 depicts a complete separation of particles and utilizes this as a reason to dismiss the figure as non-enabling. It is noted that the above discussion giving examples of particles recited oxide coated particles would necessarily have complete separation because the cores (e.g., cores, as discussed in the specification at page 6, lines 7-9) provide a physical space between each particle, thereby providing examples of materials by which FIG. 10 is properly depicted, which Appellant asserts that the figure is, indeed, properly depicted. The Examiner also suggests in the Advisory Action mailed November 27, 2006 that the potential existence of a natural oxide coating is not depicted and therefore still does not provide enablement. It is noted that the natural oxide, as discussed in greater detail by the 2nd Declaration is an inherent property of, for example, aluminum alloy particles containing greater than about 4% aluminum. Therefore, absent processing to the contrary, wherein no processing to the contrary is disclosed, the particles, such as the particles disclosed on page 12, lines 6-9 of the present specification necessarily have the oxide, whether or not the presence of the oxide is explicitly recited in the specification or not. Reliance on this inherent property is not improper and are considered part of the original disclosure, even though it is not explicitly recited, see MPEP 2163.07(a).

It is further noted that Appellant agrees with the Examiner that the claims do not require the presence of a barrier layer or the inclusion of aluminum, as currently drafted. The claims do, however, require that the particles be physically separated. The manner in which the particles are physically separated is not particularly limited and may include, for example, an oxide coating (see, e.g., 2nd Declaration), fluid barrier layer formed by the medium (see e.g., 1st Declaration), or by other methods that provide some barrier between metallic particles.

Given the above factual evidence presented in the Declarations of Andrew J. Skoog, Appellant submits that the limitation, "the particles being physically separated from one another", is enabled by the specification as originally filed and provides one of ordinary skill sufficient teaching to allow the artisan to make and use the invention.

Ground 2. Claims 17-19, 21-23, 26-28, 30-32, 34, 36 and 38-39 are rejected under 35 USC 112, first paragraph as failing to comply with the written description requirement.

Claims 17-19, 21-23, 26-28, 30-32, 34, 36 and 38-39

Independent claims 17, 26 and 32, lines 15-16 recite "the particles being physically separated from one another". Support for the language is found in, *inter alia*, FIG. 10, as follows:

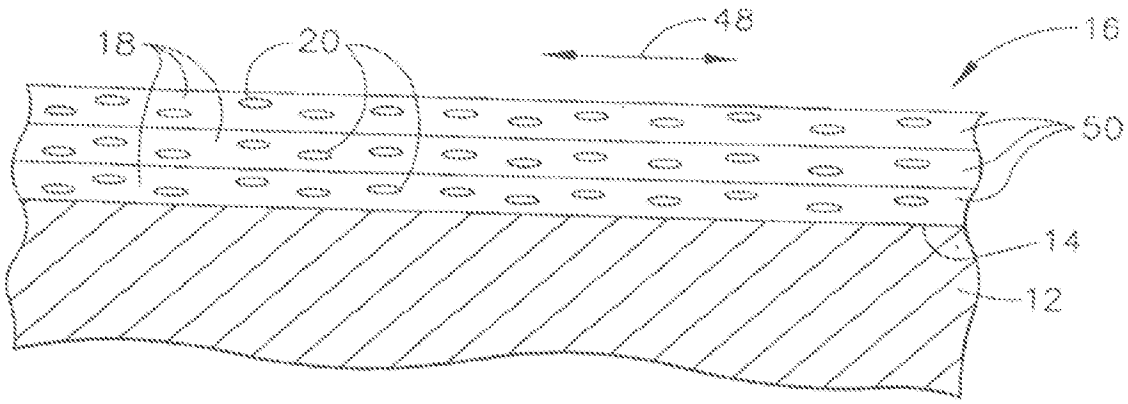
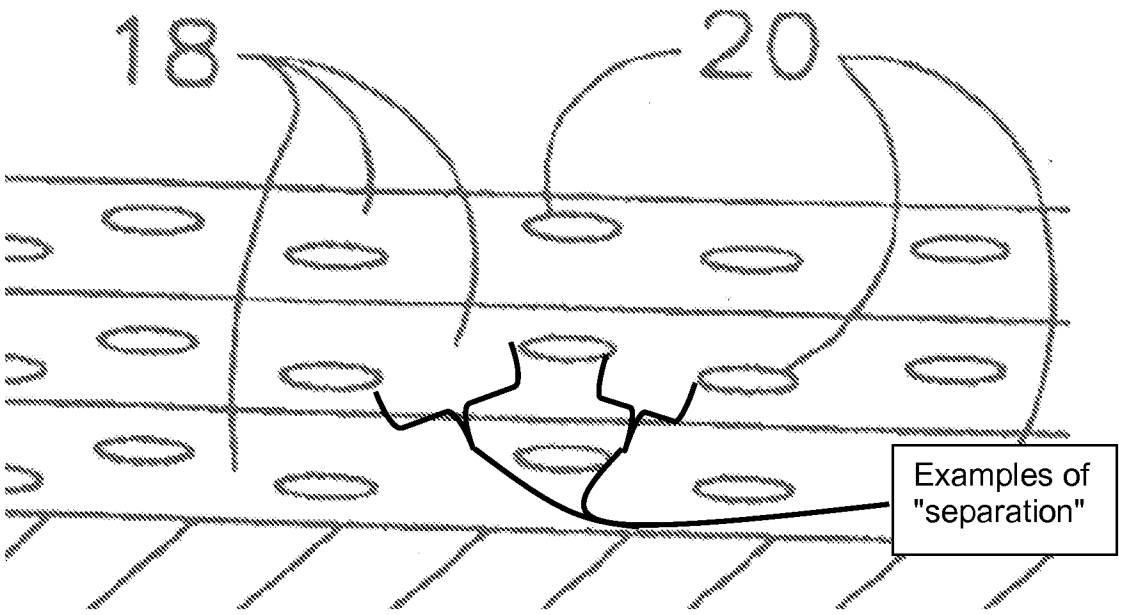


FIG. 10

As can be seen, particles (20) of FIG. 10 are shown as physically separated. Therefore, the limitation in the claims find direct support in the figures, as originally filed and therefore, are supported by the specification, as originally filed.

The Examiner alleges that the claim language was not described in the specification, as originally filed, in such a way as to reasonably convey to one skilled in the relevant art that the inventor at the time the application was filed had possession of the claimed invention. However, the figures, including FIG. 10, clearly show separated particles. For example, as shown in the enlarged section below, the particles (20) include a separation within medium (18) [Emphasis on separation shown by brackets added below]:



No reasonable basis has been provided by the Examiner to dismiss the figure for what is explicitly and clearly shown. The Examiner's belief that the Figure is "merely an exemplary drawing and not limiting of the invention" (Final Office Action, paragraph bridging pages 4-5) has no relevance to whether the drawings, as originally filed, provide support for the limitation "the particles being physically separated from one another." Although the phrase, "the particles being physically separated from one another" was a limitation added by amendment (i.e., Amendment filed July 11, 2005), this limitation finds clear and direct support in, *inter alia*, FIG. 10 and therefore is permissible and is not new matter, see MPEP 2136.06 ("...information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter").

Further still, the Examiner admits at paragraph #3, lines 9-10 of the Final Office Action that FIG. 10, indeed, shows the limitation "the particles being physically separated from one another." Therefore, FIG. 10, as admitted by the Examiner, provides support for the limitation that "the particles being physically separated from one another."

Assuming, *arguendo*, that FIG. 10 lacked support for the limitation, which is a position Applicant strongly disagrees with for the above reasons, the specification, as originally filed, has disclosure, including specific examples, that implicitly require particles to be separated. The recitations in the specification, including the examples, are further explained by Declarant Skoog in the 1st Declaration and 2nd Declaration, wherein several of the cited examples in the specification, as originally filed, (see specification page 12, lines 7-8; page 6, lines 11-15 and page 12, lines 13-14) would necessarily have particles that are physically separated. In one specific example, aluminum oxide coatings present on the surface necessarily prevent physical contact between the core metallic particles. Therefore, support for the limitation, "the particles being physically separated from one another", is present in both the specification and the figures, as originally filed.

SUMMARY AND CONCLUSION

The Examiner has improperly rejected the claims of the application under both a lack of enablement and a lack of written description.

In response to the Examiner's allegation of lack of enablement, evidence of enablement has been provided by appellant during the prosecution of the application in the form of citations to the specification, as originally filed, and in the form of two Declarations under 37 C.F.R. 1.132. The Examiner has failed to provide sufficient reasons that one of ordinary skill in the art would not find the disclosure enabling, wherein the citations to specification, as originally filed, and the Declaration evidence provided by Appellant provide clear evidence that one of ordinary skill in the art would find the disclosure, as originally filed, enabling.

Further, the Examiner's allegation of lack of written description fails both in that clear and direct support for the claim language is present in, *inter alia*, FIG. 10 and additional written support is present in the specification, as originally filed. The Examiner's dismissal of FIG. 10 as being schematic is improper and does not establish that there is insufficient written description for the claim language added by amendment, nor that the language constitutes new matter. FIG. 10, examples and disclosure in the specification, as originally filed, provide support for the claim language provided.

Applicant asks that the Board reverse the rejections.

The Commissioner is authorized to charge any fees determined to be due to the undersigned's Account No. 50-1059.

Respectfully submitted,

McNees Wallace & Nurick LLC

/Andrew L. Oltmans/

Dated: January 23, 2007

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APPENDIX I

Copy of Claims Involved in the Appeal

17. A method for orienting with respect to an article surface a plurality of non-spherical particles, comprising the steps of:

disposing non-spherical metal particles in a non-metallic medium having a viscosity which can be increased, each particle including a major dimension, and each particle being capable of being moved by a force applied to each particle;

the medium being in a fluid condition with the viscosity selected to provide a selected surface tension in the medium;

disposing the medium with the particles on a surface of a gas turbine engine component article, the article surface having a complex, three-dimensional, non-planar shape; and

maintaining the medium in the fluid condition for a time selected to enable the surface tension to locate at least about 50% of the plurality of particles with the major dimension in a position generally along the article surface in respect to which each particle is disposed, the particles being physically separated from one another.

18. The method of claim 17 in which the medium with the particles is disposed in a coating of a plurality of superimposed layers on the article surface, each of the plurality of superimposed layers containing the particles.

19. The method of claim 18 in which each layer has a thickness in the range of about 0.008-0.012".

21. The method of claim 18 in which each layer is maintained in the fluid condition for a time prior to a disposition of a subsequent superimposed layer to enable a combination of gravity and surface tension to locate at least about 60% of the plurality of particles in the coating with the major dimension in the position.

22. The method of claim 21 in which each layer has a thickness in the range of about 0.008-0.012".

23. The method of claim 18, wherein the article surface is curved.

26. A method for orienting with respect to an article surface a plurality of non-spherical particles, comprising the steps of:

disposing non-spherical metal particles in a non-metallic matrix having a viscosity which can be increased, each particle including a major dimension, and each particle being capable of being moved by a force applied to each particle;

the matrix being in a fluid condition with the viscosity and concentration selected to provide a selected surface tension in the matrix;

disposing the matrix with the particles on a surface of a gas turbine engine component article, the article surface having a complex, three-dimensional , non planar shape; and

maintaining the matrix in the fluid condition for a time selected to enable surface tension to locate at least about 50% of the plurality of particles with the major dimension in a position generally along the article surface in respect to which each particle is disposed, the particles being physically separated from one another.

27. The method of claim 26 in which the article is a component of a gas turbine engine.

28. The method of claim 26 in which the matrix with the particles is disposed in a coating of a plurality of superimposed layers on the article surface, each of the plurality of superimposed layers containing the particles.

30. The method of claim 26 in which the matrix is maintained in the fluid condition for a time to enable a combination of gravity and surface tension to locate at least about 60% of the plurality of particles in the coating with the major dimension in the position.

31. The method of claim 28 in which each layer is maintained in the fluid condition for a time prior to a disposition of a subsequent superimposed layer to enable a combination of gravity and surface tension to locate at least about 60% of the plurality of particles in the coating with the major dimension in the position.

32. A method for orienting with respect to an article surface a plurality of non-spherical particles, comprising the steps of:

disposing non-spherical metal particles in a non-metallic medium having a viscosity which can be increased, each particle including a major dimension, and each particle being capable of being moved by a force applied to each particle;

the medium being in a fluid condition with a viscosity and a concentration selected to provide a selected surface tension in the medium;

disposing the medium with the particles on a gas turbine engine component article surface, the article surface having a complex three-dimensional, non-planar shape; and

maintaining the medium in the fluid condition for a time selected to enable a combination of gravity and surface tension to locate at least about 50% of the plurality of particles with the major dimension in a position generally along the article surface in respect to which each particle is disposed, the particles being physically separated from one another.

34. The method of claim 32 in which the medium with the particles is disposed in a coating of a plurality of superimposed layers on the article surface, each of the plurality of superimposed layers containing the particles.

36. The method of claim 32, wherein the article surface is curved.

38. The method of claim 26, wherein the article surface is curved.

39. The method of claim 34, wherein the article surface is curved.

APPENDIX II

Evidence Entered and Relied Upon in the Appeal

Exhibit 1 – Declaration of Andrew Skoog filed June 22, 2006.

Exhibit 2 – Declaration of Andrew Skoog filed November 3, 2006.

Exhibit 1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	BUCZEK et al.	:	
		:	
Serial No.	10/663,320	:	Group Art Unit 1762
		:	
Application Filed	September 16, 2003	:	Examiner: JOLLEY, KIRSTEN

For: ARTICLE INCLUDING PARTICLES ORIENTED GENERALLY ALONG AN ARTICLE SURFACE AND METHOD OF MAKING

DECLARATION UNDER 37 CFR § 1.132

Andrew J. Skoog, hereby certifies the following:

1. I am a joint inventor of all the claims of the patent application identified above and I am a joint inventor of the subject matter described and claimed therein.

2. I have extensive knowledge of the compositions of superalloy and titanium materials and coatings applied over the substrates of superalloy and titanium materials.

3. The present invention, as claimed in the independent claims 17, 26 and 32 presented in the amendment filed January 27, 2006, include non-spherical metal particles within a coating medium that are physically separated from one another.

4. The physical separation of the particles within the coating medium is shown in, among other locations, Figures 5-10 of the specification of the above-reference application.

5. The physical separation of the particles within the coating medium is due to the surface tension of the selected particle and the viscosity of the coating medium, which is described at least on page 14, lines 11-13, 17-21 and 23-26; and page 15, lines 5-8 of the specification of the above-reference application.

6. The medium material contacts the particle and forms a barrier layer, which impedes particle-to-particle contact and allows movement of the individual particles within the medium.

7. In addition to impeding the particle to particle contact, the barrier layer resulting from the surface tension of the particle and the particle separation facilitates rotation in response to a force to provide the alignment of the particles in the major dimension.

8. The surface tension and gravity act further upon the non-spherical particles during curing, maintaining the separation between particles and permitting at least about 50% of the particles to be aligned in the direction of the major dimension, see e.g., page 15, lines 5-8 of the specification of the above-referenced application.

9. It is my opinion that the above discussed scientific principles, in addition to the explicit disclosure as cited above, both in the figures and in the specification, that one of ordinary skill in the art reading the specification of the above-referenced application would find the disclosure sufficient to enable one of ordinary skill in the art to make and use the invention, including the limitations "the particles being physically separated from one another".

10. I hereby acknowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon, and I hereby declare that all statements made in this declaration of my own knowledge are true and that all statements made on information and belief are believed to be true.

Andrew J. Skoog 6/2/06

Andrew J. Skoog

Exhibit 2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	BUCZEK et al.	:	
		:	
Serial No.	10/663,320	:	Group Art Unit 1762
		:	
Application Filed	September 16, 2003	:	Examiner: JOLLEY, KIRSTEN

For: ARTICLE INCLUDING PARTICLES ORIENTED GENERALLY ALONG AN ARTICLE SURFACE AND METHOD OF MAKING

DECLARATION UNDER 37 CFR § 1.132

Andrew J. Skoog, hereby certifies the following:

1. I am a joint inventor of all the claims of the patent application identified above and I am a joint inventor of the subject matter described and claimed therein.

2. I have extensive knowledge of the compositions of superalloy and titanium materials and coatings applied over the substrates of superalloy and titanium materials.

3. The present invention, as claimed in the independent claims 17, 26 and 32 presented in the amendment filed January 27, 2006, include non-spherical metal particles within a coating medium that are physically separated from one another.

4. This declaration supplements the declaration filed June 22, 2006, which is incorporated by reference herein.

5. As discussed in the 1.132 declaration filed June 22, 2006, the physical separation of the particles within the coating medium is shown in, among other locations, Figures 5-10 of the specification of the above-reference application, which illustrate preferred embodiments of my invention.

6. The disclosure, as originally filed, provides sufficient disclosure to guide one of ordinary skill in the art to selected specific materials and conditions to make the coating medium such that a barrier layer is formed around the particles resulting in physical separation. Specifically, the disclosure provides examples of materials that form barrier layers, such as aluminum containing ferromagnetic material (see specification page 12 lines 7-8). That such a barrier layer is contemplated is further supported in the specification at page 6, lines 7-8 that specifically identifies magnetic cores. One skilled in the art would recognized that such cores can exist only because they are surrounded by barrier layers.

7. As any skilled artisan would recognize, aluminum containing alloys (i.e., those having greater than about 4 wt% aluminum) form a protective aluminum oxide layer, for example, when exposed to the atmosphere. The aluminum oxide layer acts as a barrier layer around the ferromagnetic particles and provides physical separation of the ferromagnetic particles. This barrier layer permits the ferromagnetic particles to both

locate the particles with the major dimension in a position generally along the article surface in respect to which each particle is disposed and to physically separate the ferromagnetic particles.

8. An example of a material explicitly disclosed in the specification and providing one of ordinary skill in the art with guidance on the selection of a particle material that would provide physical separation includes an alloy that necessarily has an aluminum oxide layer due to the alloy's inclusion of 12wt% aluminum (see specification page 12, lines 7-8).

9. Another example explicitly cited in the specification and providing one of ordinary skill in the art with guidance on the selection of a particle material that would provide physical separation includes the inclusion of ferromagnetic materials including material disclosed in U.S. Patent No. 5,827,445 (see specification: page 6, lines 11-15), which explicitly discloses an aluminum oxide layer formed due to oxidation of an aluminum-containing alloy (see U.S. Patent No. 5,827,445: col. 3, lines 16-19).

10. The above examples in the specification provides guidance to one of ordinary skill in the art to select the particle usable with the present invention, wherein the particular matrix usable with these particles is likewise disclosed. For example, epoxy resin is utilized with the aluminum containing particles to produce the claimed positioning of the particles. (see specification: page 12, lines 13-14).

11. In addition, the specification discloses that the matrix may be epoxy resin, or other plastic, curable or hardenable material generally used in coatings to carry pigments, which provides guidance to one or ordinary skill in the art of what materials are usable with the present invention.

12. It is my opinion that the above discussed scientific principles, in addition to the explicit disclosure, as cited above, both in the figures and in the specification, that one of ordinary skill in the art reading the specification of the above-referenced application would find the disclosure sufficient to enable one of ordinary skill in the art to make and use the invention, including the limitations "the particles being physically separated from one another".

I hereby acknowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon, and I hereby declare that all statements made in this declaration of my own knowledge are true and that all statements made on information and belief are believed to be true.

Andrew J. Skoog 10/2/06

Andrew J. Skoog

APPENDIX III

Related Proceedings

Applicant is not aware of any related proceedings.